

DATA QUALITY ASSURANCE REVIEW

Site Name: Castle Drive Landfill
Site Code: TXD980626766
Case Number: 20266

Laboratory: American Analytical - Broken Arrow, OK

Water Samples: MFAP70, MFAP71, MFAP72, MFAP73,
MFAP74, MFAP77, MFAP78, MFAP96

Soil Samples: MFAP59, MFAP60, MFAP61, MFAP62
MFAP63, MFAP64, MFAP65, MFAP66,
MFAP67, MFAP68, MFAP69 MFAP59D

The data package consists of 8 water samples and 11 soil samples analyzed for TCL metals and cyanide. One sample was a duplicate in each matrix.

1. Analytical Parameters: All samples were analyzed using multi-media low concentration protocols.
2. Holding Times: All sample preparation and analyses were conducted within holding time limits.
3. Calibration Verification: All initial calibration verification results were within quality control limits. All continuing calibration verifications were conducted at the proper frequency and the results were within quality control limits.
4. Blanks: The blank concentrations for lead, selenium, and sodium exceeded the IDL for the water matrix. As such, one sodium and one selenium sample concentration are flagged (U) because their concentration was less than the blank concentration. Two samples' lead concentrations were flagged (B) since their concentration was less than five times the blank concentration. All other water matrix blanks met quality control criteria.

In the soil matrix, the preparation blank was high and the initial calibration blank exceeded the IDL for potassium. Therefore, all sample values for this analyte are flagged (B).

For copper in the soil matrix, the absolute value of the initial calibration blank exceeds the IDL. All sample values are less than five times the ICB, therefore, flagged (B).

5. Matrix Spike Recovery: Spike recovery for thallium and silver were less than 75%. As such, analyte concentrations of both elements are flagged (J). All other matrix spikes for the water matrix meet quality control criteria.

The %R was miscalculated for the following analytes in the water matrix analysis:

ELEMENT/IONIC SPECIES	%R LISTED VALUE	TRUE VALUE
Pb	82.6	77.6
V	94.6	93.6
Cr	103.3	100.8
Tl	81.8	73.8
Ag	48.1	34.2

The spike recovery for manganese and mercury in the soil matrix was less than the 75% but the sample results >IDL. All manganese and mercury concentrations are flagged (J). All other spike recoveries met quality control criteria.

6. Duplicates: The RPD for iron in the water matrix exceeded quality control criteria. All iron concentrations are flagged (J). All other analyte RPD's met quality control criteria. The RPD for aluminum was incorrectly calculated to be 200.0%. It should have been 50.8%.

All RPD's in the soil matrix were within quality control limits.

7. Laboratory Control Samples: Laboratory control sample %R met quality control criteria for both the soil and water matrix.
8. ICP Interference Check Sample (ICS): ICP interference check samples were analyzed at the specified frequency and the results were within control limits.
9. ICP Serial Dilution: The %D for manganese was 11.1%. This did not meet the quality control criteria. Analyte concentrations are flagged (J). All other %D met quality control criteria.
10. Furnace AA: In water matrix, arsenic concentration in sample MFAP70 > CRDL. Spike recovery = 124%. Sample abs. > 50% of spike abs. MSA not conducted so analyte concentration was labelled (J). Thallium concentration in samples MFAP73 and MFAP96 exceed CRDL. Post digestion spike recovery <40%, analyte concentrations are flagged (J).
11. Sample Result Verification: Data package associated with the water matrix had no missing or incorrectly numbered pages.

The soil matrix data package did not have an inventory sheet so this could not be assessed.

12. Overall Assessment of Data:

The data package is acceptable with the following exceptions noted:

Matrix spike analysis & spike recoveries cause thallium, silver in the water matrix and manganese and mercury in the soil matrix to be flagged (J).

Duplicate data in the water matrix caused iron to be flagged (J).

Blank variance from quality control criteria caused lead, selenium, and sodium to be flagged (B) in the water matrix along with copper and potassium in the soil matrix.

001479

10-Sep-93

CHEMICAL DATA SUMMARY

Site Name and Code: Castle Drive Landfill, TXD980626766
 Case Number: 20266
 Concentrations in milligrams/kilogram (mg/kg)
 Compiled by: Fluor Daniel Inc.

Traffic Number:	MFAP59	MFAP60	MFAP61	MFAP62	MFAP63	MFAP64	MFAP65
Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Percent Solids:	79.2	79.4	83.6	82.1	84.6	84.3	79.5
Location:	SS-01	SS-02	SS-03	SS-04	SS-05	SS-06	SS-07
and/or Sample Description:		Field Duplicate					

COMPOUND NAME	CAS NO.	CLASS	Concentration C	Concentration C	Concentration C	Concentration C	Concentration C	Concentration C	Concentration C	Concentration C
ALUMINUM	7429-90-5	INO	26,200.00	36,800.00	24,500.00	28,700.00	31,300.00	14,100.00	27,500.00	
ANTIMONY	7440-36-0	INO								
ARSENIC	7440-38-2	INO	6.60	5.60	6.00	5.10	5.20		4.50	
BARIUM	7440-39-3	INO	205.00	208.00	261.00	259.00	215.00	63.50	151.00	
BERYLLIUM	7440-41-7	INO		1.20						
CADMIUM	7440-43-9	INO								
CALCIUM	7440-70-2	INO	124,000.00	115,000.00	119,000.00	91,300.00	122,000.00	75,500.00	84,800.00	
CHROMIUM	7440-47-3	INO	23.70	34.90	22.30	24.50	29.10	7.30	28.10	
COBALT	7440-48-4	INO	8.70	7.80	10.60	12.30	7.00	6.70	6.70	
COPPER	7440-50-8	INO	21.80	B 16.30	B 11.40	B 17.30	B 14.80	B 7.80	B 11.40	B
IRON	7439-89-6	INO	17,700.00	21,400.00	15,300.00	17,500.00	18,100.00	2,470.00	16,500.00	
LEAD	7439-92-1	INO	19.20	14.90	15.40	55.80	20.90	12.50	14.50	
MAGNESIUM	7439-95-4	INO	4,060.00	5,290.00	3,610.00	4,050.00	4,410.00	6,240.00	4,130.00	
MANGANESE	7439-96-5	INO	874.00	J 729.00	J 895.00	J 1,480.00	J 723.00	J 320.00	J 618.00	J
MERCURY	7439-97-6	INO	0.21	J					0.23	
NICKEL	7440-02-0	INO								
POTASSIUM	7440-09-7	INO	2,600.00	B 4,130.00	B 1,770.00	B 2,440.00	B 2,840.00	B 2,130.00	B 2,420.00	B
SELENIUM	7782-49-2	INO								
SILVER	7440-22-4	INO								
SODIUM	7440-23-5	INO		209.00		265.00	468.00	553.00	246.00	
THALLIUM	7440-28-0	INO								
VANADIUM	7440-62-2	INO	47.40	85.80	49.20	57.50	53.30		52.20	
ZINC	7440-66-6	INO	55.60	73.70	41.40	79.00	59.00	74.70	46.40	
CYANIDE		INO								

LEGEND

INO - Inorganic

B - Blank Interference

J - The associated value is an estimated quantity.

R - Date for analyte is unusable.

U - The material was analyzed for but was not detected above the level of the associated value.

UJ - The material was analyzed for but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

CHEMICAL DATA SUMMARY

Site Name and Code: Castle Drive Landfill, TXD980626766
Case Number: 20266
Concentrations in milligram/kilogram (mg/kg)
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LEGEND

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BATHSTMET

09-Sep-93

CHEMICAL DATA SUMMARY

Site Name and Code: CASTLE DRIVE LANDFILL, TXD980626766
 Case Number: 20266
 Concentration in micrograms/liter (ug/l)
 Compiled by: Fluor Daniel Inc.

Traffic Number:	MFAP70	MFAP71	MFAP72	MFAP73	MFAP74	MFAP77	MFAP78
Matrix:	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Percent Solids:	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Location:	GW16	GW17	GW14	GW19	GW20	GW12	L-15
and or Sample Description:							

COMPOUND NAME	CAS NO.	CLASS	Concentration	C	Concentration	C	Concentration	C	Concentration	C	Concentration	C	Concentration	C
ALUMINUM	7429-90-5	INO	215.00		202.00						57.60		227.00	
ANTIMONY	7440-36-0	INO												
ARSENIC	7440-38-2	INO	10.50	J				3.60					11.00	
BARIUM	7440-39-3	INO	90.50		76.20		47.70		70.10		46.80		771.00	
BERYLLIUM	7440-41-7	INO												
CADMIUM	7440-43-9	INO												
CALCIUM	7440-70-2	INO	227,000.00		184,000.00		151,000.00		384,000.00		142,000.00		150,000.00	
CHROMIUM	7440-47-3	INO	6.30		6.20									
COBALT	7440-48-4	INO	34.00										16.40	
COPPER	7440-50-8	INO	10.70		11.90			13.60					10.40	
IRON	7439-89-6	INO	9,550.00	J	179.00	J	324.00	J	113.00	J	96.20	J	814.00	J
LEAD	7439-92-1	INO			2.50	B							4.00	B
MAGNESIUM	7439-95-4	INO	26,800.00		25,300.00		27,200.00		44,700.00		25,700.00		13,100.00	
MANGANESE	7439-96-5	INO	2,250.00	J	105.00	J	588.00	J	885.00	J	552.00	J	1,230.00	J
MERCURY	7439-97-6	INO												
NICKEL	7440-02-0	INO	19.40										61.20	
POTASSIUM	7440-09-7	INO	1,990.00		1,510.00		2,680.00		3,630.00		2,930.00		1,750.00	
SELENIUM	7782-49-2	INO											2.10	U
SILVER	7440-22-4	INO			8.60	J								
SODIUM	7440-23-5	INO	73,300.00		159,000.00		368,000.00		364,000.00		351,000.00		76,700.00	2,220.00 U
THALLIUM	7440-28-0	INO						40.00	J					
VANADIUM	7440-62-2	INO			6.60								21.40	
ZINC	7440-66-6	INO	8.80		47.00		3.90		6.10		4.40		16.00	
CYANIDE		INO												

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B:\8THSTMET

001482

001483

CHEMICAL DATA SUMMARY

Site Name and Code: CASTLE DRIVE LANDFILL TXD980626766
Case Number: 20266
Concentration in micrograms/liter (ug/l)
Compiled by: Fluor Daniel Inc.

Traffic Number:	MFAP96	MFAP72D			
Matrix:	WATER	WATER			
Percent Solids:	0.0	0.0			
Location:	GW-13	GW-14			
and/or					
Sample					
Description:					

COMPOUND NAME	CAS NO.	CLASS	Concentration C	Concentration C	Concentration C	Concentration C	Concentration C	Concentration C	Concentration C
ALUMINUM	7429-90-5	INO		73.95					
ANTIMONY	7440-36-0	INO							
ARSENIC	7440-38-2	INO	6.20						
BARIUM	7440-39-3	INO	25.20	46.80					
BERYLLIUM	7440-41-7	INO							
CADMIUM	7440-43-9	INO							
CALCIUM	7440-70-2	INO	460,000.00	150,642.15					
CHROMIUM	7440-47-3	INO							
COBALT	7440-48-4	INO							
COPPER	7440-50-8	INO	10.20						
IRON	7439-89-6	INO	172.00	J 143.13	J				
LEAD	7439-92-1	INO							
MAGNESIUM	7439-95-4	INO	144,000.00	27,143.14					
MANGANESE	7439-96-5	INO	877.00	J 587.09	J				
MERCURY	7439-97-6	INO							
NICKEL	7440-02-0	INO							
POTASSIUM	7440-09-7	INO	11,500.00	2,815.05					
SELENIUM	7782-49-2	INO							
SILVER	7440-22-4	INO							
SODIUM	7440-23-5	INO	300,000.00	369,824.39					
THALLIUM	7440-28-0	INO	40.00	J					
VANADIUM	7440-62-2	INO							
ZINC	7440-66-6	INO	8.60	4.83					
CYANIDE		INO							

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